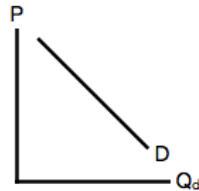


Economics

Competitive Markets: Demand and Supply

DEMAND

- **Demand** - quantities of good/service a consumer is *willing* and *able to buy* at different prices, *ceteris paribus*. There is a **negative causal relationship**.
- **Law of demand** - as price increases, Q_d falls.
- Downward sloping because of diminishing marginal benefits.

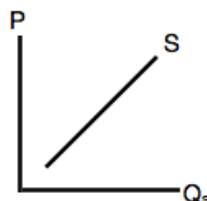


NON-PRICE DETERMINANTS

- **Normal goods** - goods for which demand increases when income increases.
- **Inferior goods** - goods for which demand decreases as income decreases.
- **Changes in preferences and tastes**.
- **Substitute goods** - goods that satisfy similar needs. Fall in price for one good results in fall in demand for its substitute.
- **Complementary goods** - goods that are used together. Fall in price of one good results in rise in demand for its complement.
- **Demographic changes**, such as number of buyers.

SUPPLY

- **Supply** - quantities of good/service a firm is *willing* and *able* to produce and supply at different prices, *ceteris paribus*. There is a **positive causal relationship**.
- **Law of supply** - as price increases, Q_s increases.
- Slopes upward because higher price results in higher profits so incentive to produce more.
- Vertical supply curve - quantity supplied remains constant because of fixed quantity of good (no time to produce or no chance of producing).



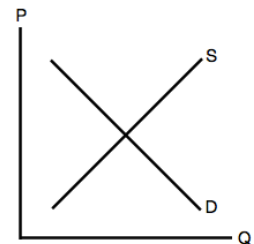
NON-PRICE DETERMINANTS

- **Costs of factors of production** - increase in costs result in decrease in supply.
- **Technology**.
- **Competitive supply** - products that compete for use of same resources. Fall in price of one good results in increase of supply of the other good.
- **Joint supply** - goods that are derived from a product. Increase in price of one will result in increase in supply of the other.
- **Firm expectations**.
- **Taxes** (shift left) and **subsidies** (shift right).
- **Number of firms**

- **Shocks** - can cause sudden decrease in supply.

DEMAND AND SUPPLY

- Excess supply is **surplus**;
- excess demand is **shortage**.



PRICE MECHANISM

- Scarcity forces societies to decide what to produce. Opportunity costs involved.
- Prices are *signals* because they communicate info to decision-makers and are *incentives* because they motivate decision-makers to take action.
 - Ex: Higher price signals producer that there is shortage and incentivizes them to increase Q_s .

EFFICIENCY

- **Allocative efficiency** - producing goods wanted by society
- **Consumer surplus** - highest price consumers willing to pay minus paid price.
- **Producer surplus** - price received by firms minus lowest price they are willing to accept to produce the good.
- **Social surplus** - consumer surplus and producer surplus.
- $MB = MC$ is where social surplus is maximum. This is when **social welfare** is also maximum.

Elasticities

PRICE ELASTICITY OF DEMAND (PED)

- **PED** is responsiveness of quantity demanded to price changes.
- $PED = \% \Delta Q / \% \Delta P$
- PED is negative, but the minus sign is dropped.
- **Inelastic demand** when $0 < PED < 1$. $\% \Delta Q_d$ is less than $\% \Delta P$, so Q_d is relatively unresponsive to price changes.
- **Elastic demand** when $1 < PED < \infty$. $\% \Delta Q_d$ is greater than $\% \Delta P$, so Q_d is relatively responsive to price changes.
- **Unit elastic** when $PED = 1$. $\% \Delta Q = \% \Delta P$.
- **Perfectly inelastic** when $PED = 0$. Whatever the price, there is no change in Q_d . Usually due to addiction. Vertical demand curve.
- **Perfectly elastic** when $PED = \infty$. If price increases, demand falls to 0. If price decreases, demand is infinite. Horizontal demand curve.
- PED varies along demand curve. PED inelastic when price low and quantity high. PED elastic when price high and quantity low.

PED DETERMINANTS

- **Number and closeness of substitutes** - more substitutes, more elastic demand.

Economics

- Definition of good can impact number of substitutes
- **Necessities** - essential goods, less elastic
- **Luxuries** - more elastic
- **Length of time** - longer the time period for decisions, good becomes more elastic.
- **Proportion of income** - more elastic if larger proportion of income spent.

PED APPLICATIONS

- **Total revenue (TR)** is money received when a good is sold. $TR = P \times Q$.
- If demand is elastic, price increase will decrease TR.
- If demand is unit elastic, price changes will not cause TR change.
- If demand is inelastic, increase in price will increase TR.
- **Primary commodities** are goods from natural resources (land), such as agricultural products or extractive industry products.
- Primary commodities have low PEDs because they are necessities. Manufactured goods have higher PED because they have substitutes.
- Low PED for primary commodities can impact producers if there are supply fluctuations.
- The lower the PED for a taxed good, the greater the government tax revenues.

CROSS-PRICE ELASTICITY OF DEMAND (XED)

- **XED** is responsiveness of demand for one good to price change of another good.
- $XED = (\% \Delta Q_d \text{ of good X}) / (\% \Delta P \text{ of good Y})$
- Positive XED - substitute goods
- Larger the value, the stronger the substitutability.
- Negative XED - complementary goods.
- Larger absolute value, more complementary.
- $XED = 0$ - unrelated goods

XED APPLICATIONS

- Businesses can consider XED before making price changes or making mergers.

INCOME ELASTICITY OF DEMAND (YED)

- **YED** measures responsiveness of demand to income changes.
- $YED = (\% \Delta Q_d) / (\% \Delta \text{Income})$
- If $YED > 0$, a good is normal.
- If $YED < 0$, a good is inferior.
- **Income inelastic** if $0 < YED < 1$. Necessities are income inelastic.
- **Income elastic** if $YED > 1$. Luxuries are income elastic.

YED APPLICATIONS

- As an economy experiences economic growth, income increases, so demand for g/s increases. Income elastic goods grow at a higher rate than income inelastic goods.
- The higher the YED, the greater the expansion of its market will be in the future.

- An economy has three sectors: primary (agriculture, forestry, etc.), manufacturing, and services. Agriculture is usually income inelastic, and so the demand for agricultural output grows slowly than income growth.
- Over time, agricultural output of economy shrinks while the manufacturing sector grows.

PRICE ELASTICITY OF SUPPLY (PES)

- **PES** measures responsiveness of quantity supplied to price changes.
- **Price inelastic** when $PES < 1$. (End point cuts Q axis)
- **Price elastic** when $PES > 1$. (End point cuts P axis)
- **Unit elastic** when $PES = 1$. (End point passes origin)
- **Perfectly inelastic** when $PES = 0$. Vertical supply curve. No matter what happens to price there is no quantity change.
- **Perfectly elastic** when $PES = \infty$. Horizontal supply curve.

PES DETERMINANTS

- **Length of time** - over short time, firms can't change quantity it produces, so PES is inelastic.
- **Mobility of factors of production** - greater PES if firms can shift production easily
- **Spare capacity** - More elastic the more spare capacity.
- **Ability to store stocks** - Products have higher PES for firms that can store stocks.

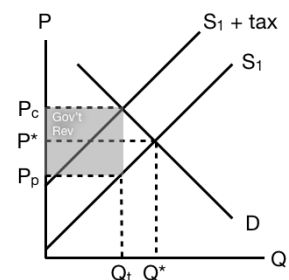
PES APPLICATIONS

- Primary commodities have lower PES because they need time to respond to price changes.
- Inelastic supply goods have larger price fluctuations which means large revenue fluctuations.
- The greater the responsiveness the longer the time producers can make adjustments.

Government Intervention

INDIRECT TAXES

- **Indirect taxes** imposed on spending. Split into **excise taxes** and general sales taxes.
- Excise taxes imposed because they are a source of government revenue and can discourage consumption of harmful goods. They can also redistribute incomes and improve allocation of resources.
- **Specific taxes** are taxes of a fixed amount per unit and **ad valorem** taxes are taxes of a fixed percentage.
- On a diagram, taxes shift the supply curve upwards.
- Consumers pay more (P_c) and receive Q_t quantity.

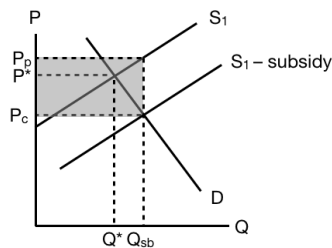


Economics

- Producers receive P_p and revenues fall to $P_p \times Q_t$.
- The government earns revenue $(P_c - P_p) \times Q_t$.
- Less workers needed to produce less quantity. Some are unemployed.
- Society worse off because underallocation of resources.

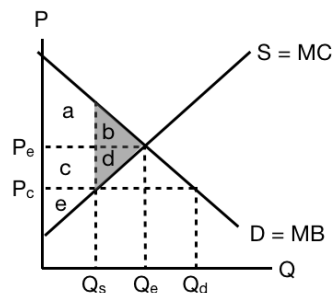
SUBSIDIES

- Subsidies** are payments/assistance by the government to groups. They can change relative prices and on a diagram, it is represented by a downward supply shift.
- Granted to firms to **1)** increase revenues, **2)** make goods affordable to low-income earners, **3)** encourage consumption, **4)** support growth, **5)** encourage exports, and **6)** improve allocation of resources.
- Consumers pay less (P_c) and can purchase more.
- Producers receive higher price and produce a larger quantity; more revenue.
- Government budget used to pay for subsidy.
- More workers are hired.
- Society still worse off because of overallocation.
- Foreign producers impacted.

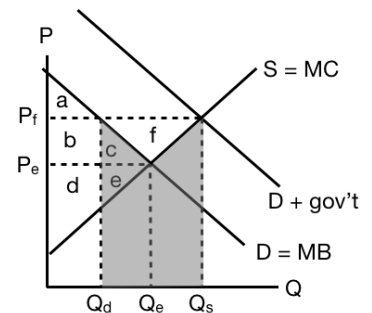


PRICE CONTROLS

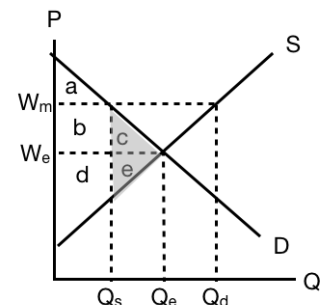
- Price controls** are government-set minimum/maximum prices so that prices cannot go to their equilibrium level. Will result in surplus/shortage.
- A **price ceiling** is a legal maximum price set *below* the equilibrium price.
 - Will create a shortage.
 - The price mechanism will not achieve rationing function; non-price rationing used: "first come first served," favoritism, or use of coupons.
- Underground markets** that are usually illegal are formed.
- Underallocation of resources. Society is not getting enough of the good ($MB > MC$).
- Welfare loss (shaded region).
- Consumers gain **c** but lose **b**.
- Producers sell smaller quantity of good; revenue falls. Loss of **c** and **d**.
- Some workers unemployed.
- No gains/losses for government; possible popularity change.



- Rent controls that **1)** make housing more affordable, **2)** cause shortage of housing, **3)** decrease quantity of housing, **4)** cause long waiting lists, **5)** cause underground market, and **6)** poorly maintained housing.
- Food price controls are used to make food affordable.
- A **price floor** is a legally set minimum price above the equilibrium price.
- Imposed to **1)** provide support for farmers by offering their products at above-equilibrium price and **2)** protect low-wage workers.
- Governments can have **price supports** price floors to help farmers where the government also purchases the surplus.
- Surplus of $Q_s - Q_d$
- Government needs to deal with the excess supply.
- Firms inefficient because they don't have to cut costs.
- Overallocation of goods.
- Welfare loss of shaded region. $MB < MC$.
- Consumers pay higher price and buy smaller quantity.
- Producers receive higher price and produce higher quantity. Protected from competition.
- Workers gain employment.
- Government budget used to buy excess supply.
- Global misallocation of resources.
- Minimum wage** laws determine the minimum price of labor.



- Labor surplus of $Q_s - Q_d$.
- Illegal workers work below the legal minimum.
- Misallocation of labor resources and in product markets.
- Welfare loss of **c** and **e**.
- Firms face higher costs of production.
- Workers may gain higher wages, but some may lose their job.
- Consumers pay more for lower quantities (higher labor costs).
- Prices can be fixed at a certain level.



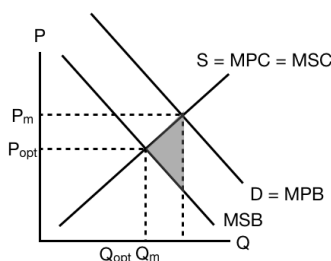
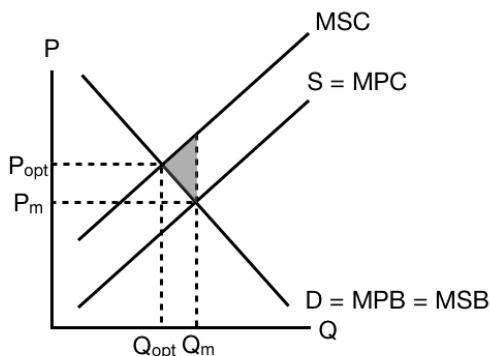
Market Failure

EXTERNALITIES

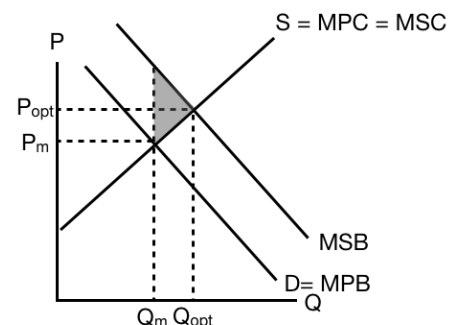
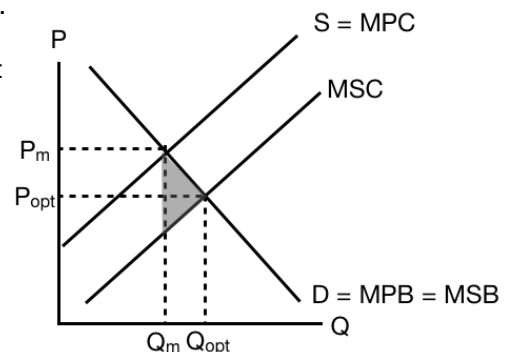
- Allocative efficiency** achieved when $MB = MC$.

Economics

- **Externalities** occur when actions cause side effects to third parties not involved in the action.
- Positive externalities have external benefits. $MSB > MSC$
- Negative externalities have external costs. $MSC > MSB$
- Production externalities form divergence between private and social costs. Consumption externalities are between private and social benefits.
- **Negative externalities of production** are external costs made by producers, such as pollution. Too much of the good is produced. $MSC > MSB$ and $Q_m > Q_{opt}$ at Q_m .
- Welfare loss is the shaded region.
- Government regulations can be used to correct externalities by bringing the MPC curve closer to MSC.
- Governments can use market-based policies: **taxes** or **tradable permits**.
- Taxes on output produced or pollutants emitted would shift the $S = MPC$ curve upwards.
- A **carbon tax** can create incentives for producers to reduce pollution created. Taxes on output cannot achieve this, they only reduce output amount.
- **Tradable (cap and trade schemes) permits** involve governments issuing permits to pollute that can be traded. The supply curve for these permits is perfectly inelastic.
- Advantages of market-based policies: they **internalize the externality** and the costs are paid for by the transaction parties. They also provide incentives for firms to pollute less.
- Disadvantages: hard to find a value for pollution or harm, and some firms can still pay a tax while polluting. How many permits to be produced?
- Advantages of government regulation: simply implemented and force firms to comply.
- Disadvantages: can cause higher cost, costs of enforcing, and don't provide incentives.
- **Negative externalities of consumption** are costs created by consumers, such as second-hand smoke. $Q_m > Q_{opt}$ and $MSC > MSB$ at Q_m .
- Welfare loss at shaded area.
- **Demerit goods** are undesirable goods that are overprovided.
- Correction methods: **(1)** government



- regulation, **(2)** advertising, or **(3)** market-based policies.
- Advertising and regulation aim to shift demand curve to MSB. Market-based policies usually are taxes to raise supply curve.
- Market-based solutions preferred because they internalize externality and create incentives. External costs hard to measure and value.
- Advertising and persuasion are simpler but have costs for campaigns. Regulation is useful but limited.
- **Positive externalities of production** are benefits created by producers, such as new technology that others can use. $Q_m < Q_{opt}$ and $MSB > MSC$ at Q_m .
- Welfare loss is shaded area.
- Can be corrected with direct government provision or subsidies to shift $S = MPC$ to MSC
- **Positive consumption externalities** are benefits created by consumers, such as education that can give rise to lower unemployment or a more productive workforce. Underallocated, because $Q_m < Q_{opt}$ and $MSB > MSC$ at Q_m .
- Welfare loss at shaded region.
- **Merit goods** are desirable but underprovided because **(1)** they have positive externalities, **(2)** some consumers can't afford it, or **(3)** consumers don't know of the benefits.
- Legislation, advertisement, government provision, and subsidies can correct PCEs.
- Legislation and advertisement shift $D = MPB$ to MSB to promote greater consumption.
- Government provision/subsidies increase quantity of good produced/consumed and lowers the price of the good. They rely on gov't funding that can be spent elsewhere, so decisions need to be made.
- Legislation and advertising are only good at shifting MPB and can increase the price of the good.



PUBLIC GOODS

- A **private good** is **rivalrous** and **excludable**. A **public good** is **non-rivalrous** and **non-excludable**.

Economics

- People enjoy use of good without paying for it because of non-excludability. This is the **free rider problem**. Private firms do not produce these goods and no resources are allocated to the production of them.
- **Quasi-public goods** are **non-rivalrous** but **excludable** (like entrance fees).
- Government decides which and in what quantities public goods should be produced. Government funds limit this. Governments have to estimate value/demand of public goods. Benefits are hard to calculate.

COMMON ACCESS RESOURCES & SUSTAINABILITY

- **Common access resources** are resources not owned by anyone and don't have a price.
- They are overused because they have no price and are non-excludable. They are rivalrous.
- **Sustainability** - ability of something to be maintained over time; ability of environment and economy to satisfy needs and wants of future.
- **Pollution of affluence** comes from high-income consumption and industrial production. **Pollution of poverty** comes from economic activities by poor people trying to survive.
- High-income production/consumption can cause externalities.
- Poor people don't have modern tools to help agriculture, and have higher population. They try to find more agricultural land but also drain their resources.
- Governments can have legislation to limit sustainability threats.
- **Clean technologies** aim for responsible/productive resource use.
- Private firms and governments should be involved in funding for clean technologies. There are opp. costs.
- Environmentally damaging subsidies should be removed. Subsidies for fossil fuels used to promote competitiveness.
- Ozone layer suffered depletion (common access). Montreal Protocol phase out CFC usage.

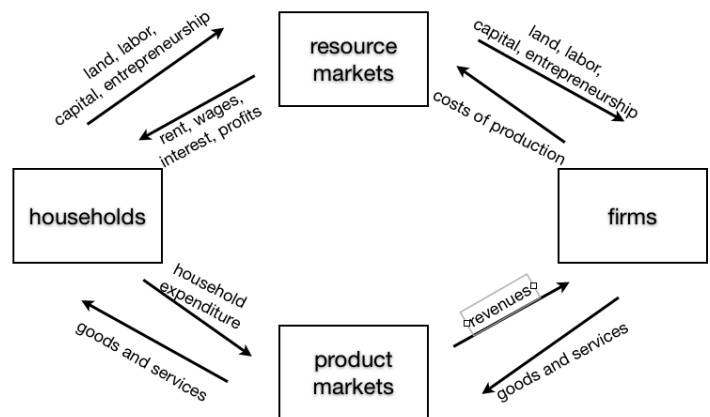
CARBON TAX VS. CAP-AND-TRADE SCHEMES

- Carbon taxes make energy prices predictable.
- Carbon taxes easier to implement.
- Carbon taxes applied to all users.
- Carbon taxes don't have manipulation opportunities.
- Carbon taxes don't need much monitoring.
- Cap and trade schemes have political pressures.
- Carbon taxes less likely to restrict competition.
- Carbon taxes may be set too low.
- Carbon taxes cannot target level of reduction.
- Carbon taxes are regressive.

Level of Overall Economic Activity

ECONOMIC ACTIVITY

- **Circular flow model** shows a closed economy.



- **Income flow** is equal to **expenditure flow**.
- In any given time period, value of output produced = total income generated in producing the output = expenditures made to purchase output.
- **Leakages** are matched by **injections**. Income flow smaller if injection < leakages and larger if injection > leakages.
 - **Saving** - unspent consumer income.
 - **Investment** - spending for capital good production.
 - **Taxes** - leakage that is not used to buy goods and services.
 - **Gov't spending** - injection of tax funds back into expenditure flow.
 - **Imports** - a leakage; **exports** - injection.

MEASURING ECONOMIC ACTIVITY

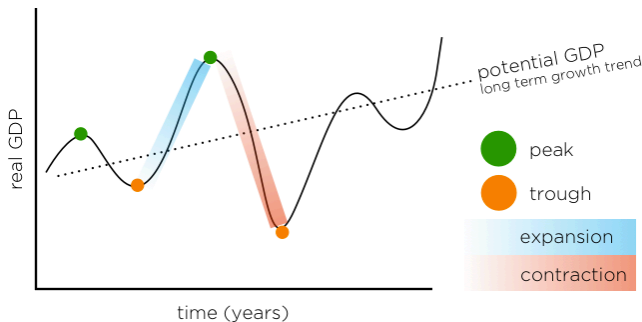
- **Expenditure approach** - $C + I + G + (X - M)$
- **Income approach** - income earned by FoP that produce g/s over time period.
- **Output approach** - value of all final g/s produced in country
- **GDP** - market value of all final g/s produced in a country over a time period.
- **GNI/GNP** - total income received by residents of a country (= value of final g/s produced by FoP supplied by the country's residents regardless of location)
- **Nominal value** in terms of current prices. **Real value** takes in account of change over time.
- **Total** is everyone, provides summary of economy. **Per capita** divides it by population.
- GDP and GNI **1)** don't include non-marketed output, **2)** don't include underground market output, **3)** don't take in account quality improvements, **4)** don't account for negative externalities, **5)** don't take in account resource depletion, **6)** inaccurate due to diff. domestic prices.
- GDP and GNI also **1)** don't distinct composition of output, **2)** don't reflect education and health, **3)** don't have distribution info, **4)** don't include leisure and QoL factors.

Economics

- **Green GDP** takes in account environmental degradation:
GDP – value of env. degradation – P (expenditures from cleaning up.)

BUSINESS CYCLE

- Growth: %change in real GDP.
- Decrease in GDP \neq decrease in GDP growth.
- **Business cycle cyclical.**



- **Expansion, contraction, peak, trough.**
- **Long term growth trend** shows how output grows over time when fluctuations are ironed out.
- When actual GDP > potential GDP, less natural unemployment.
- Macroecon objectives: reduce intensities and increase output

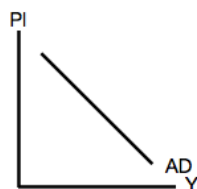
Aggregate Demand and Aggregate Supply

AGGREGATE DEMAND

- **AD** - total quantity of aggregate output (real GDP). Horizontal axis real GDP and vertical axis price level.
- Negative slope because:
 - **wealth effect** - price level change affects wealth
 - **interest rate effect** - change in price level affects interest rates. increase in PI \rightarrow more money needed \rightarrow higher demand for money \rightarrow interest rates rising \rightarrow cost of borrowing increases \rightarrow less purchase.
 - **int'l trade effect** - if domestic PI increases and other countries are same, exports more expensive.
- Demand is willingness and ability for one product. AD is of all possible buyers.

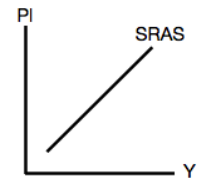
AD DETERMINANTS

- Changes in consumer/business confidence.
- Changes in interest rates.
- Changes in wealth.
- Changes in personal income/business taxes.
- Changes in household/corporate indebtedness.
- Changes in technology.
- Legal/institutional changes.
- Changes in political priorities.
- Changes in economic priorities.
- Changes in national income abroad.
- Changes in exchange rates.
- Changes in trade protection.



SHORT RUN AGGREGATE SUPPLY

- **Short run** - resource prices constant and inflexible. **Long run** - resource prices flexible.
- **AS** - total quantity of g/s produced in an economy @ different price levels.

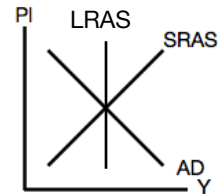


SRAS SHIFTS

- Changes in wages.
- Changes in non-labor resource prices.
- Changes in business taxes.
- Changes in subsidies.
- Supply shocks.

AD-AS

- AD intersects AS at the equilibrium level of output.
- **Recessionary gap** - real GDP < potential GDP
- **Inflationary gap** - real GDP > potential GDP
- **Full level of output** - real GDP = potential GDP



SHORT-RUN CHANGES

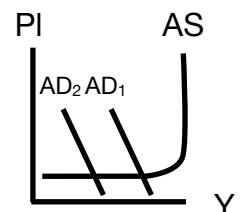
- Rightward AD shifts will raise price level and increase real GDP (decrease in unemployment).
- Rightward SRAS shifts will lower price level and increase real GDP (lower unemployment).
- AD shifts will cause output gaps.
- SRAS shifts will cause either **1) stagflation** or **2) higher real GDP with lower PI**.

LONG-RUN AGGREGATE SUPPLY

- LRAS curve is vertical at potential GDP.
- In the long run (monetarist view), the LRAS curve is vertical because as the price level increases, resource prices change to match the price changes.
- Output gaps are eliminated in the long run.
 - Output gaps cannot persist and disappear. Ex: deflationary gap occurs when AD shifts left. SRAS shifts right to counter the change, and economy is back at potential GDP (though @ lower PI).
- In the long run, the only effect AD has on an economy is the price level.

AS AND KEYNESIAN MODEL

- In the Keynesian model, prices are inflexible downwards. Wages won't decrease in a recessionary gap, so prices are unlikely to fall.
- Economy can't move into long run.
- Horizontal part of Keynesian AS curve shows that there is a lot of **spare capacity** that can be used to increase GDP w/o increasing resource prices. At curve, GDP rises with PI. At vertical part, AD increases can't raise Y, but only PI.



Economics

- If economy at equilibrium less than full level of output, there is deflationary gap. If at vertical section, there is inflationary gap.
- Because of inability for prices to fall, when there is a recessionary gap because AD is too low, GDP can remain at the low point. Governments must intervene to help the economy.
- AD increase will not always increase the price level in the Keynesian model.

AS SHIFTS, LONG TERM

- Factors that shift AS curves in the long term:
 - Quantities of FoP increases
 - Quality of FoP improves
 - Tech/efficiency improvements
 - Institutional changes.
 - Natural rate of unemployment reduction
- Long-term growth is the rightward shifting of LRAS.

Low Unemployment, Low&Stable Inflation

UNEMPLOYMENT

- **Unemployment** - people of working age actively looking for a job but are not employed.
- **Underemployment** - people of working age that would rather work jobs that make full use of their skills.
- **Unemployment rate:** (# of unemployed)/(labor force)
- Unemployment underestimated because of **hidden unemployment:** **1)** excludes discouraged workers, **2)** does not distinguish full-time/part-time, **3)** does not distinguish type of work, **4)** does not include people on retraining programs. Overestimated because it does not count underground economy.
- Unemployment rate can differ by: region, gender, ethnic groups, age, and skills.
- Economic consequences of unemployment: **1)** real GDP loss, **2)** income loss, **3)** tax revenue loss, **4)** government costs for benefits, **5)** social problem costs, **6)** unequal income distribution, **7)** hard for them to find work in future.
- Personal/social consequences: **1)** personal problems, **2)** more social problems, like crime
- **Structural unemployment** - demand changes and location changes; part of natural unemployment. Diagram used: S-D diagram where demand falls.
- **Labor market rigidities** - factors preventing supply/demand to work in labor market: **1)** minimum wage (increase costs of production, S left), **2)** unions, **3)** employment protection, **4)** unemployment benefits
- **Frictional unemployment** - workers between jobs, such as being fired or quitting. Due to incomplete information.
- **Seasonal unemployment** - demand for labor changes based on season.
- Above types of unemployment are natural.
- Fall in natural rate of unemployment reflected by potential output increase.

- **Cyclical unemployment** (demand-deficient) - happens in recessionary gap due to low/falling AD.

INFLATION

- **Inflation** - sustained increase in general price level.
- **Deflation** - sustained decrease in general price level.
- **Disinflation** - decrease in rate of inflation.
- Inflation measured with **CPI** - basket of goods where value is totaled over years to see change.
- CPI problems:
 - different inflation rates for different income earners
 - different inflation rates due to factors.
 - consumption patterns change due to price changes
 - consumption patterns change due to sales
 - consumption patterns change due to new stuff
 - product quality
 - international comparisons and comparability over time
- **Core rate of inflation** - CPI sans food & volatile energy
 - **PPI** - several indices at various stages of production; predictors of CPI changes.
- Inflation comes with consequences:
 - **people with fixed (or slow increasing) income** - worse
 - **cash holders** - worse (purchasing power of cash falls)
 - **money savers** - worse
 - **lenders** - worse off (real value of repayment less).
 - **borrowers** - gain
 - **payers of fixed (or slow increasing) income** - gain
 - **uncertainty** - people cannot predict future
 - **menu costs** - costs when firms have to reprint stuff to reflect new prices
 - **money illusion** - people feel better off even though their purchasing power has not increased
 - **int'l competitiveness** - imports cheaper and exports more expensive
- **Demand-pull inflation** - inflation caused by excess AD so inflationary gap forms.
- **Cost-push inflation** - caused by supply shocks or cost of production increases. Only in AD-AS model with a leftward AS shift.
- Deflation also has consequences but rarer because **1)** worker wages don't fall regularly, **2)** firms fear price wars, **3)** firms want to avoid menu costs:
 - **redistribution effects opposite from inflation, uncertainty, and menu costs.**
 - **risk of deflationary spiral with increasing cyclical unemployment**
 - **risk of bankruptcies**
- Deflations have good or bad types. Bad is related to recessionary gap. Good is rightward shift of LRAS.

Economic Growth&Income Distribution Equity

ECONOMIC GROWTH

Economics

- **Economic growth** - increase in real GDP.
- Economic growth can impact real GDP per capita.
- Reductions in unemployment and productive efficiency increases can cause actual output growth.
- Increases in quantity of resources and improvements in quality of resources can shift PPC outwards.
- **Capital** - resources that can produce future stream of benefits:
 - **physical capital, human capital, natural capital.**
- Investment important to build capital.
- Increases in quantity and quality of physical capital from investments are important sources of economic growth.
- Increased quantity of labor unlikely to be source of economic growth, but improvements in quality are important.
- Marketable commodities are not essential, but can help growth.
- Ecological goods and common access resources are important to growth, because growth depends on the economy's ability to maintain.
- **Productivity** - quantity of output produced each hour by working population. Their improvements come from making labor more productive:
 - increasing quantity/quality of physical capital
 - improvements in quality of labor
 - improvements in ecological resources
- Economic growth shown by LRAS shift right.

EQUITY IN DISTRIBUTION OF INCOME

- Equity - being fair and just; equality - equal with respect to something.
- Market doesn't result in equitable distribution of income because ownership of FoP highly unequal and the prices of them differ.
- **Lorenz curve** shows income inequality of economy
- **Gini coefficient** - area between diagonal and curve / region under diagonal
- Gini value between 0 and 1; closer to 1, the higher inequality
- **Poverty** - inability to satisfy minimal needs
- **Absolute poverty** - people whose income falls below a specified poverty line. <\$2 is moderate, <\$1.25 is extreme by the World Bank. Each country may have their own poverty line too.
- **Relative poverty** - compares income of individuals to median income. These people cannot afford g/s with a lifestyle that is typical in the society.
- Causes of poverty: **low incomes, unemployment, low levels of human capital or land ownership, discrimination, geography, age, limited social services, or poverty itself.**



- Consequences of poverty include: **1)** low living standards, **2)** lack of health care or education, **3)** high mortality, **4)** higher levels of disease, **5)** social problems, **6)** inability to realize full potential.
- **Transfer payments** - payments with the purpose to redistribute incomes.
- Subsidized provision/direct provision make certain goods with PCEs available to low income earners.
- Governments also enforce minimum wages, food price ceilings, and agricultural price floors.
- **Taxation** makes redistribution possible.
- **Direct tax** - taxes paid directly to government, such as personal/corporate income taxes and wealth taxes. Social insurance taxes are paid by workers and employers but only used for specific purpose.
- **Proportional taxation** - constant tax rate
- **Progressive taxation** - increasing tax rate
- **Regressive taxation** - decreasing tax rate. Example: indirect taxes
- The more progressive a tax system, the more equal the after-tax distribution becomes.
- Taxes affect allocation of resources - move economy to efficient allocation if to correct market failure but not implemented with these intentions
- High progressive tax system will cause equality of income distribution but causes disincentive to work.
- GST lead to unequal distribution.
- Evidence that shows tax changes don't affect labor supplied much. Pursuit of equality and equity can complement.
- Transfer payments may be disincentives to the unemployed but might be necessary.
- Government has opportunity costs.

Demand-side and Supply-side Policies

FISCAL POLICY

- **Demand-side policies** focus on changing aggregate demand. There are discretionary policies and automatic stabilizers.
- Government revenue from taxes, sale of g/s and government properties. Government expenditure includes current (day-to-day)/capital (investments) expenditures and transfer payments.
- Government budget is plan of tax revenues and expenditures. Balanced if revenue = expenditures, deficit if more expenditures, and surplus if more revenue. Over time deficits accumulate to debt.
- Government-owned properties are one-off payments.
- **Fiscal policy** - manipulations of expenditures and taxes to influence AD.
- **Expansionary** fiscal policy - increasing G, decreasing taxes, or both. To shift AD right.
- **Contractionary** fiscal policy - decreasing G, increasing taxes, or both. To shift AD left.
- **Automatic stabilizers** work automatically.

Economics

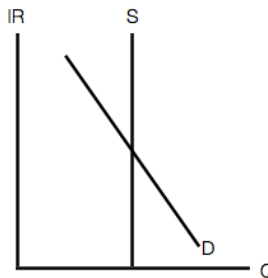
- The **more progressive** an income tax system, the **greater the** stabilizing effect on the economy.
- Unemployment rises in recession, so more benefits are given, lessening downward pressure.
- Demand-side policies can also have supply-side effects that affect economic growth.

EVALUATING FISCAL POLICY

- Can pull economy out of recession.
- Can deal with rapid inflation.
- Can target sectors of economy.
- Can impact government spending.
- Can affect potential output.
- Time lags.
- Political constraints.
- **Crowding out** when government borrowing causes less investment spending.
- Inability to deal with supply-side causes.
- Tax cuts ineffective in increasing AD.
- Inability to fine tune economy.

MONETARY POLICY

- **Monetary policy** carried out by central banks which can serve as banker to government, commercial banks, and regulate them.
- Increase in supply of money leads to rate of interest fall. Decrease in supply of money leads to interest rate rise.
- Monetary policy aims to alter spending (C) and investment (I).
- **Expansionary (easy)** monetary policy done by increasing supply of money which lowers IR to increase AD.
- **Contractionary (tight)** monetary policy done by decreasing supply of money which raises IR to lower AD.
- **Inflation targeting** is when a country uses monetary policy to focus on maintaining full employment and a low rate of inflation.



EVALUATION OF INFLATION TARGETING

- Low and stable rate of inflation
- Improved ability of future anticipation.
- Monetary/fiscal coordination.
- Central bank transparency.
- Reduced ability to pursue other objectives.
- Reduced ability to respond to supply shocks.
- Reduced ability to respond to events.
- Finding appropriate target.
- Difficult implementation.

EVALUATION OF MONETARY POLICY

- Quick implementation.
- Central bank independence.
- No constraints and crowding out.

- Fine tuning (to an extent).
- Time lags.
- Ineffective in recession.
- Conflicts with gov't objectives.
- Inability to deal with stagflation.

INTERVENTIONIST SUPPLY-SIDE POLICIES

- **Supply-side policies** focus on supply side by shifting LRAS or Keynesian AS to the right.
- **Interventionist** policies suppose that free market economy cannot achieve potential output and government intervention needed.
- Investment in human capital: **training** and **better health care**.
- Investment in technology and infrastructure: **R&D**.
- **Industrial policies** such as tax cuts or grants for **small and medium sized enterprises** or **infant industries**.

MARKET BASED SUPPLY-SIDE POLICIES

- Three types: **1)** Encouraging competition, **2)** labor market reforms, **3)** incentive related policies
- (1)
- **Privatization** - transfer of ownership of firm from public to private sector
- **Deregulation** - reduction of government regulation of private sector activity (such as allowing more firms to boost competition.)
- **Private financing of public sector projects** - financed out to private firms which increases competition.
- **Contracting to private sector (outsourcing)**
- **Restricting monopoly power**
- **Trade liberalization**
- (2) try to reduce market rigidities
- **Abolishing minimum wage legislation** - increased wage flexibility
- **Weakening trade unions.**
- **Reducing unemployment benefits and job security**
- (3)
- **Lowering taxes** - arguable that this can affect aggregate supply by incentivizing people to work more.

EVALUATION OF SUPPLY-SIDE POLICIES

- Time lags
- Increases in potential output.
- Interventionist supporters argue that market unlikely to provide necessary support.
- Market-based supporters argue that government interference can cause misallocation. Also government intervention can rely on spending that can be used elsewhere.
- Tax-cuts controversial because some people may use after-tax income for more leisure instead of work.
- SS policies can reduce unemployment by giving workers needed skills.
- Market-based policies for competition can increase unemployment in short term.

Economics

- SS policies likely to reduce inflationary pressures in long term by keeping costs down.
- Negative government budget effects or negative environmental impact.
- Negative equity effects.

INFLATION/UNEMPLOYMENT POLICIES

- Cyclical unemployment caused by low AD.
- Supply-side policies don't focus on cyclical unemployment but can affect it.
- Natural unemployment mainly by supply-side, although demand-side policies can affect the supply-side. (Affecting AD will cause inflation).
- Supply-side measures can help reduce unemployment because they impact employment directly. Market-based policies don't affect gov't budget but can contribute to loss of protection.
- Demand-pull inflation caused by AD increase. Monetary policy preferred. Supply-side policies can shift LRAS as a side effect but not used mainly.
- Cost-push inflation caused by shocks, so depends on cause of inflation. Can break up monopolies and find alternate solutions (energy).
- Inflation targeting targets inflation, does not care about type of inflation. Ineffective in stagflation because can cause more recession.

International Trade

TRADE

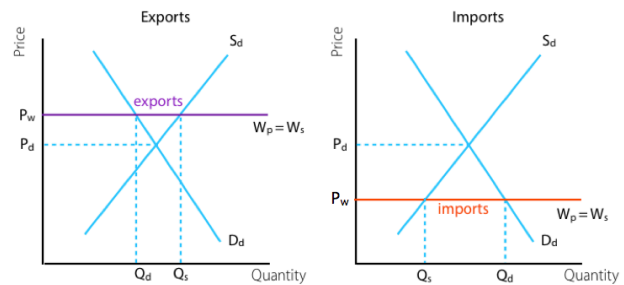
- Trade has benefits such as **1)** increase in consumption, **2)** economies of scale, **3)** more consumer choice, **4)** increased competition, **5)** lower price, **6)** acquiring resources, **7)** possible free trade, **8)** source of foreign exchange, **9)** allow new tech flow, **10)** interdependence, **11)** engine for growth

WORLD TRADE ORGANIZATION

- GATT formed in 1947 for non-discrimination, elimination of non-tariff barriers and resolving disputes. GATT changed to WTO in 1995.
- WTO **1)** administers WTO agreements, **2)** provides forum for trade negotiations, **3)** handles trade disputes, **4)** monitors national trade policies, **5)** provides assistance and training, **6)** facilitates cooperation
- WTO based on principles of **1)** non-discrimination, **2)** free trade, **3)** predictability, **4)** fair competition, **5)** economic reform

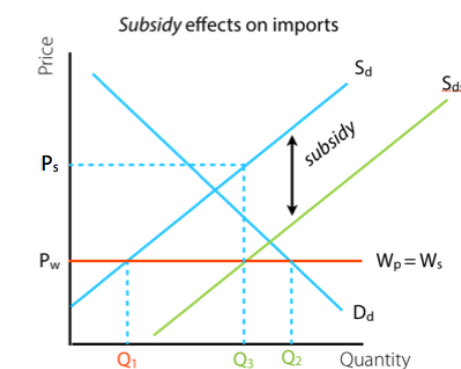
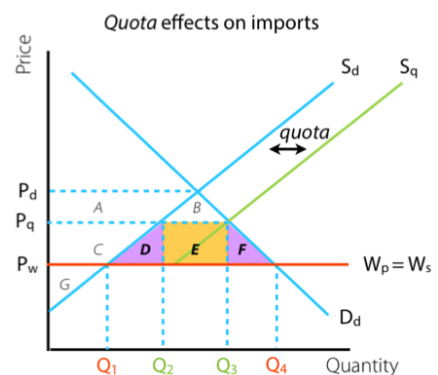
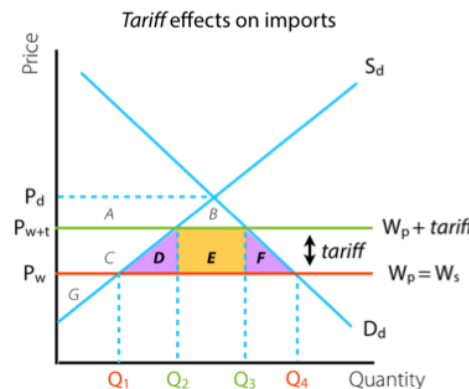
TRADE RESTRICTIONS

- **Trade protection** - government barriers to prevent free trade.
- **Tariffs** - customs duties that protect domestic industry or raise revenue for government.
- Domestic consumers pay more for less, producers sell more for more. Imports from $Q_4 - Q_1$ to $Q_3 - Q_2$.



- **Quotas** are limits to imports. Similar to tariffs, consumers worse off and domestic producers better off.
- No government revenue. Government gives out quota licenses.

- **Subsidies** are payments to producers to help them compete. Consumption is **not** effected, so economists prefer subsidies.
- **Administrative barriers** such as inspection, customs, and valuation reduce quantity imported because of the extra cost. Some are because of safety and standards, but are often just done to limit imports.



PROTECTION EVAL

- Only producers and workers gain.
- Higher costs of production = lower efficiency.
- Consumers usually lose.
- Income distribution worsens.
- Foreign producers worse off.
- Society loses.
- Negative effects on competitiveness.
- Trade wars and corruption.
- Infant industry support - at least until it matures.
- Strategic trade policy to help achieve econs of scale for high tech industries.

Economics

- National security should be protected so a country can produce them for defense. Other related industries try to apply for protection too.
- Standards.
- Diversify (opposite of specialize).
- Tariffs as government revenue.
- Overcome BoP deficit.
- Anti-**dumping** (selling good in int'l market below production costs).
- Protection of domestic jobs.
- **Wage protection argument** - no justification!!

Exchange Rates & Balance of Payments

EXCHANGE RATES

- **Exchange rates** - relation of one currency to another.
- **Freely floating exchange rates** are determined by market forces. Value increase is **appreciation**, decrease is **depreciation**.
- Can change due to **1)** foreign export demand changes, **2)** domestic import demand changes, **3)** relative IR changes, **4)** inflation rates, **5)** investment, **6)** changes in income, and **7)** speculation
- Central bank can buy foreign currency (sell domestic) to shift supply curve to depreciate currency.
- Depreciation makes imports more expensive, appreciation makes imports less expensive.
- Appreciation can reduce demand-pull inflationary pressures by influencing (X-M).
- Depreciation increases AD which can remove cyclical unemployment.
- Depreciation can result in short-term growth because later there can be inflation.
- **Fixed exchange rates** are fixed by the central bank. It is maintained by buying/selling currencies.
- Excess supply of currency, central bank sells foreign reserves to buy excess. If excess demand, central bank will buy foreign currency.
- With downward pressure and excess supply, bank cannot sell reserves and needs other ways.
- **Increase in interest rates, borrowing from abroad, limit imports or impose exchange controls** are some other ays.
- **Devaluation** is when government refixes rate to lower value and **revaluation** is when the rate is fixed to a higher value.
- **Managed float** systems are when the rates are allowed to change by market forces, but the government can intervene to stabilize them.
- Some countries **peg** their exchange rates with a stabler currency and float along with it.
- **Overvalued currency** has too high value compared to market value. Can make imports cheaper, but exports become expensive.
- **Undervalued currency** too low value relative to market value. Makes imports more expensive but exports

cheaper to expand export market. Considered cheating to have a **dirty float**.

BALANCE OF PAYMENTS

- **BoP** is record of transactions between debits and credits.
- **Current account** - balance of trade in goods and services, income (rents, interest, profit), and current transfers.
- **Capital account** - capital transfers (forgiveness, grants) and non-produced, non-financial assets (airspace).
- **Financial account** - direct investment, portfolio investments (stocks and bonds), and reserve assets.
- **Errors and omissions** to make debits = credits.
- Current account balance = capital account + financial account.
- Current account deficit means country consumes more, pays for extra output through financial account.

BALANCE OF PAYMENTS AND EXCHANGE RATES

- With freely floating rates, market forces create downward pressure in currency exchange rates during deficit and upward pressure during surpluses.
- With managed floats, the BoP is balanced by market forces and central bank controls.
- BoP balanced in fixed exchange rates with policies.

	Fixed	Floating
Certainty	<i>High degree of certainty.</i>	<i>Higher uncertainty.</i>
Foreign currency reserves	<i>Maintain fixed exchange rate.</i>	<i>Not necessary.</i>
Ease of adjustment	<i>No easy methods.</i>	<i>Automatic adjustment.</i>
Flexibility	<i>No flexibility.</i>	<i>Greater flexibility.</i>

Economic Integration

ECONOMIC INTEGRATION

- **Economic integration** - cooperation between countries.
- **Preferential trade agreement** - agreement between countries to lower trade barriers.
- **Bilateral/Multilateral/Regional agreements.**
- WTO agreements are multilateral.
- **Trading bloc** is group of countries to reduce tariffs and barriers.
- **Free trade area** - eliminate barriers between themselves; rules of origin against others
- **Customs union** - FTA but with common policy to non-members
- **Common market** - customs union w/o restrictions on FoP movement

Economics

- Allow **1)** increased competition, **2)** expansion, **3)** economies of scale, **4)** lower prices, **5)** increased investment, **6)** better resource allocation and growth, **7)** political advantages but might not be good way to achieve liberalization, can create obstacles for free trade, and result in unequal distributions.
- **Monetary union** - common market with a common currency and common central bank
 - Eliminates exchange rate risk, uncertainty, and transaction costs.
 - Encourages price transparency.
 - Higher investment level.
 - Low inflation rates.
 - Loss of exchange rates adjustment mechanism
 - Loss of monetary policy.
 - Fiscal policy limited by **convergence requirements**.
 - Monetary policy impacts countries differently.